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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: POLYCRYSTALLINE DIAMOND TOOLS AND METHOD OF MAKING THEREOF

(57) Abstract: The present invention is a tool insert. The tool insert includes a abrasive layer and a substrate. The abrasive layer has a periphery forming a cutting surface and is located on the substrate. The abrasive layer includes at least one of polycrystalline diamond or cubic boron nitride. The abrasive layer tool insert has a sum value of an impact resistance number and an abrasion resistance number that is  $\geq 19,000$ . The impact resistance number is equal to a total number of hits before failure of the tool insert. The abrasion resistance number is equal to equation (1) (1) abrasion resistance = final volume of granite removed by the tool insert (inch<sup>3</sup>)/final tool wear land area (inch<sup>2</sup>).



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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/013779

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C09K3/14 E21B10/56 B23B27/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 855 996 A (CORRIGAN FRANCIS RAYMOND ET AL) 5 January 1999 (1999-01-05) cited in the application whole document, in particular the examples and figs.1a-c, claim 1	1-21
X	EP 0 352 811 A (NORTON CO) 31 January 1990 (1990-01-31) whole document, but in particular, p. 6, 1.10-15 and 1.24-33, and example 8	1-21
X	US 4 604 106 A (HALL DAVID R) 5 August 1986 (1986-08-05) whole document, but in particular the examples	1-7
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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International Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 096 465 A (CHEN SY-HWA ET AL) 17 March 1992 (1992-03-17) column 4, line 44 - line 65; claims 11-16; example 3 column 7, line 35 - line 64	1-7, 12-14
P,X	WO 2004/000543 A (PHOENIX CRYSTAL CORP) 31 December 2003 (2003-12-31)  whole document, in particular examples and figure 4	1-7, 9-14, 16-21
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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